

SELECTING AN EMS PARTNER

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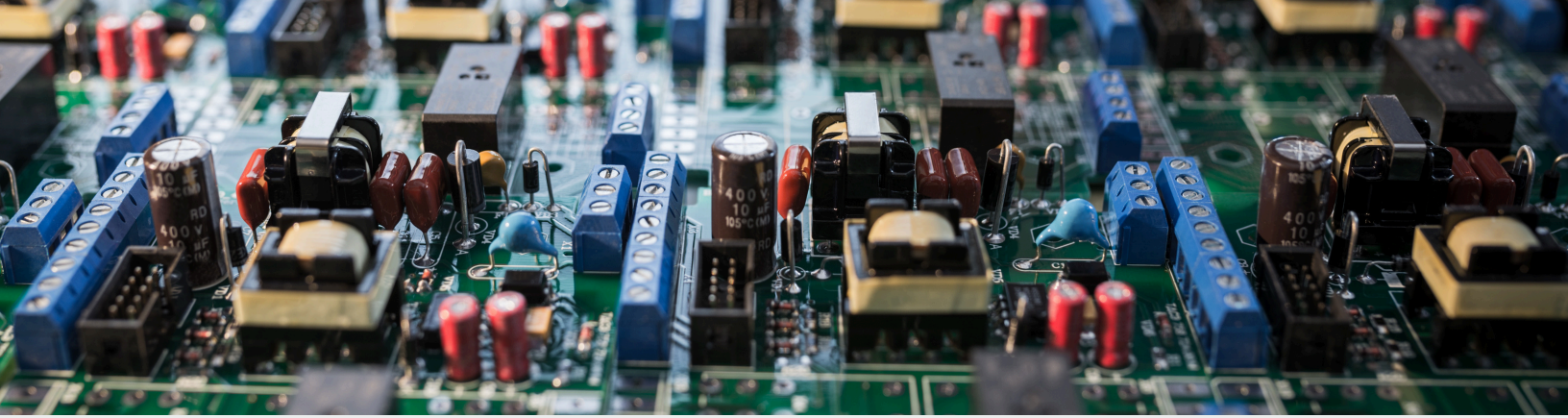
Since the EMS industry is a low margin industry, in order for an Electronics Manufacturing Services (EMS) company to meet its customers' cost expectations, it must lean out all processes, including supporting the customer's EMS selection process. Although there is no exact process and each engagement is different, I would like to recommend an efficient EMS partner selection process.

If the objective is to find an EMS company that has the lowest price, and to deal with them on a transactional basis, you can stop reading now. This paper is about steps to find and to establish a long-term partnership.

Many initial engagements start with a Request For Quotation (RFQ). When outsourcing electronics manufacturing, the majority of the cost is in the Bill Of Materials (BOM). Since selecting a manufacturing partner is time-consuming, the RFQ is likely to be out of date by the time both companies are ready to proceed. Additionally, many early quotes are done with a lot of assumptions which could have a major impact on the final price. I would like to emphasize a process that is becoming more common and I believe, most successful in establishing a long term partnership.

This process entails:

1. Initial Alignment Discussion
2. Mutual Non-Disclosure Agreement (NDA)
3. Alignment Discussion
4. Request For Information (RFI)/Initial Manufacturing Services Agreement (MSA) Review
5. Plant Visits
6. Quote
7. Award Decision



The first step is an initial alignment discussion. The Original Equipment Manufacturer (OEM) should have a clear idea of their goals in selecting an outside manufacturing partner. The alignment discussion starts with the OEM sharing these high level objectives. The EMS partner shares their options in supporting the OEM's objectives. At this stage, or after the NDA is in place, it is important for the EMS company to understand the scope. What is the opportunity for the EMS company? How many products need to be supported? What is the complexity (i.e., how many different component part numbers)? What is the timing? Does the OEM have the resources to qualify the EMS company itself, as well as validate the products the OEM wants to source from the EMS?

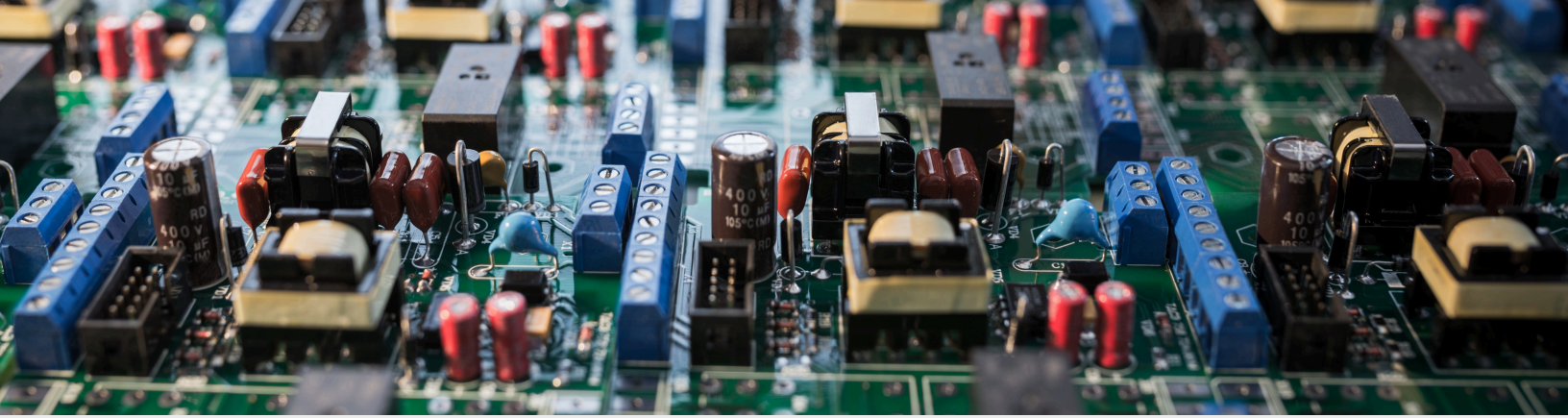
If both organizations agree to proceed, then a mutual NDA should be executed.

Once the NDA is in place, (much) more in-depth discussion is warranted: many times, face to face, to allow both organizations to start to understand each company's capabilities and culture.

One of the first items that need to be understood is the financial strength of each party. If one or both companies are not public, some sharing of financial information will be required.

If, at any point in this process, either party identify what appears to be an insurmountable obstacle, they should discuss the issue and consider stopping the process. This is in the best interest to both organizations to save precious resources.





Now we move to the RFI stage. At this point, it is also important to share Manufacturing Service Agreement (MSA) expectations. Both organizations need to understand where there may be issues in coming to an agreement. The MSA does not necessarily need to be negotiated at this time; however, it is important for both organizations to understand whether any significant issues exist.

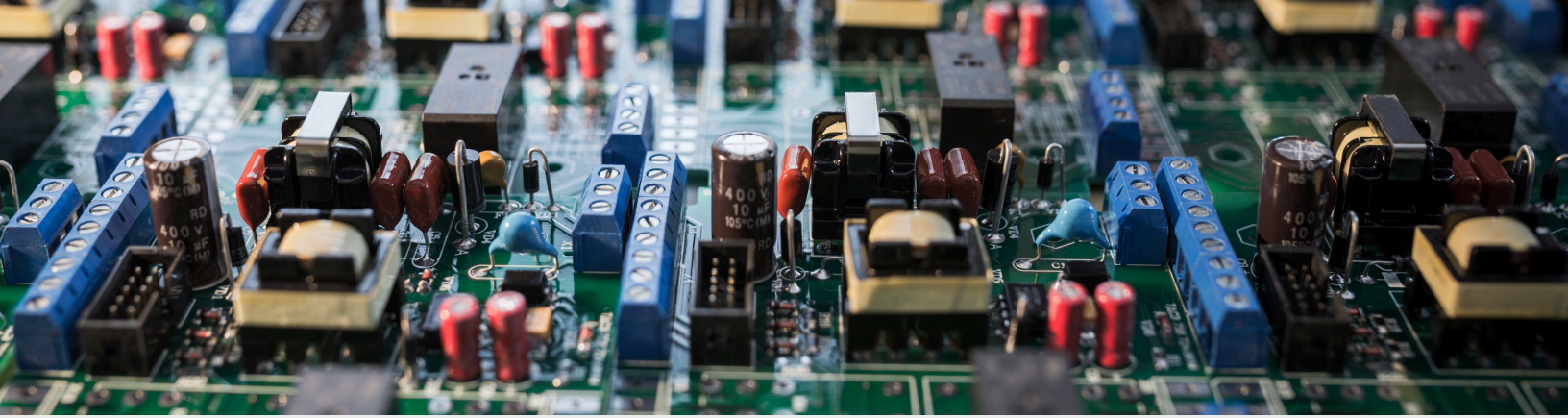
The RFI needs to be very well crafted to capture not just technical capabilities and available capacity, but also performance and culture. It is certainly important to understand the Surface Mount Technology (SMT) equipment platforms, number of zones of the reflow oven, traceability systems, Automatic Optical Inspection (AOI) systems, available capacity (both equipment and floor space), quality systems, etc.; but equally important is the strength and culture of the organization. What are the length of the customer relationships? What is the employee retention and length of service, both hourly and salaried? What is the EMS employee development program? Does the EMS have the strength to drive productivity?

Many times, on-time delivery (OTD) data is requested. To answer this question, the best source for this information is the EMS' customers. So, ask for references and call them.

Also, ask to see the return rate over the last 12 months. Quality spills do occur with even the best companies; it's helpful to hear how the EMS handled their last one (even if it occurred outside the last twelve months).

Now onto the plant visits. Many times at this point, OEMs want to understand the pricing level before spending corporate travel monies to visit a plant. Since there should be transparency in the BOM cost, directional pricing using the OEM's BOM cost is usually best at this point.

While it is important to see the facility, it's just as important to get to know the people you will be engaging with. Granted, you need to walk the facility observing equipment (if running or not running) and processes, lighting, cleanliness, etc.; but equally important is the pulse of the facility and happiness of the workers. You can feel this. Happy workers have a direct correlation to high quality.



Now the quote. Since both parties have invested in this alignment process, they now have a vested interest in success. The EMS company, clearly knowing the opportunity and the OEM, will allocate the resources in preparing the best quote possible with minimal amount of assumptions. If a quote has not been done yet using the OEM's BOM cost, then this is a good time for this initial pricing analysis. In parallel, quoting the full BOM needs to be done. If the timing aligns correctly, this quote can be used for both the award decision as well as for the initial purchase order.

For the quote, the EMS company needs the following, again to minimize quote assumptions:

- BOM with AVL, this includes manufacturer and manufacturer part number.
- Pricing for any parts the OEM has negotiated, including country of origin and payment terms.
- Identification of any parts that will be consigned by the OEM to the EMS.
- Mechanical strategy. Has the OEM sourced and tooled up the mechanical parts, or will the EMS need to quote the mechanicals?
- Gerber Data & Printed Circuit Board (PCB) fabrication drawing.
- Circuit Schematic to determine ICT time and fixture cost.
- Component programming requirements. At what point in the process does the component(s) need to be programmed? What is the file size (bytes) that needs to be programmed? How will the source code be provided?
- Assembly Drawing.
- Detail on any product special processes that the OEM will transfer or want the EMS to develop.
- Conformal coating requirements if applicable (material, thickness, keep out areas).
- Functional Test requirements. Will the OEM provide the functional tester or is the EMS expected to develop it? If the OEM will provide, what is the functional test time? What floor space will be required?
- Scope. If the quote is a sampling of the program to be awarded, it is important to understand both the order history as well as forecast for both the part numbers being quoted and the population that needs to be supported. Quoting the aggregate BOM is beneficial to provide a proper comparison of material costs.

Finally, the Award, and the beginning of a long-term relationship.